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Maps of Andean Indians

There is a rapidly growing interest in contemporary ethnicity and ethnic relationships in the Americas, but discussions of these issues tend to lack detailed maps of the distributions of cultural traits related to ethnic groups. This essay will provide examples of the use of contemporary census materials to map language distributions in the central Andes, and discuss some implications for ethnic regionalization.[1]

Maps 1, 2, and 3 indicate the distribution of highland Indian languages (Quechua, Quichua,[2] or Aymara) in Ecuador, Peru, and Bolivia. They are based on recent ethnolinguistic census information from these countries, and reflect a methodology developed by the author of this paper and his students. The remainder of this paper is a discussion of the problems and possibilities of using twentieth-century censuses to map cultural patterns in the Andean region, with particular emphasis on using census linguistic data for mapping highland Indian populations.[3]

Criteria of Ethnicity

Ethnicity, uniting groups by perceived common origin and common destiny, simultaneously meets a fundamental human need for meaning and provides a strategy for survival of at least equal importance to the tactics of agricultural intensification and food preparation. Ethnicity, in the analysis of Adam's, may be internally defined by self-aware groups or externally defined by outsiders.[4]

Groups may use a variety of formal characteristics to externalize belonging and to recognize common heritage; these characteristics may include those of similarity of language, religion, race, cuisine, adaptive strategy, dress, and architecture; and that of having lived within a particular territory. Appropriate characteristics are defined and

refined continuously through speech, art, and literature. Ethnicity becomes salient in particular situations, where individuals may either "deploy" selected characteristics to make an ethnic claim or be "branded" as part of an ethnic group by outsiders pursuing an agenda. Typically, each situation is unique, and the same individual may make differing ethnic claims or be branded differently in different contexts. Thus, ethnicity is one of the most difficult social phenomena to study, and can be understood in a given group only after considerable research. In particular, ethnicity per se, in the strictest sense of the word, cannot be mapped; only those characteristics of populations that are commonly used in ethnic claims (or to brand ethnic groups) can be mapped. A further consequence of the plasticity of ethnic identification as a situation-specific claim is that most individuals recognize a hierarchy of ever more inclusive ethnic identifications, beginning with a small group and extending to ever larger groupings.

In much of Latin America, ethnic identities at the largest scale have traditionally been linked to such generic categories of the conqueror as Indian, black, white or mestizo, as defined by physical appearance, language, or other characteristics, and as refined and modified historically and regionally. Slightly smaller in scale and overlapping the "racial" typology have been the new nationalist identifications. Yet more local traits and ties at the village and regional level have also persisted in the face of the challenges of incorporation in the world economy and the growth of the nation-state, and arguably ethnic claims and imputations at this regional level have been more significant for Latin Americans than either national claims or pan–Latin American racial identifications.[5]

Research in cultural geography can reveal the distribution of potentially significant cultural traits, and thus the possibility for an ethnic identification associated with particular territories. Minority culture traits may persist in certain territories due to displacement, neglect of perceived "useless" areas by the politically dominant group, or conscious policy, resulting in the creation of cultural refuge areas.[6] In the long run, however, territoriality can perhaps best be considered a positive achievement of the ethnic group: a decision to use territorially tied characteristics as tools of ethnic self-identification to aid in the group's control over its resource base.[7]

Criteria of Ethnicity versus Criteria for Mapping Ethnic Territories

As already discussed, ethnicity per se cannot be mapped directly; only the criteria that can be used to define ethnicity can be mapped. Nevertheless, groups commonly

choose territorially linked criteria in their self-definition and may rely on a sense of "homeland" to aid in the formation of a group identity. Maps thus can come to play a crucial role in ethnic relationships. These issues can be clarified by introducing some terminological distinctions that will be adhered to in the remainder of this paper.

1. The factors that can be used by group members or by outsiders to determine if an individual can rightfully claim to belong to a group can be called formal criteria of ethnicity. Formal criteria include critical evidence for suggesting common heritage, including language, physical appearance, occupation, and place of origin. Usually these criteria partially converge (are redundant). The definitions of formal criteria are embedded in the arts, literature, political statements, and everyday speech of both ethnic minorities and the dominant society, and are subject to constant review and refinement. Thus, we can distinguish between formal criteria of insiders and of outsiders, and between formal criteria that have been socially recognized and criteria that exist but have not yet been recognized except by scholars. Normally, the practical employment of a formal criterion involves numerous problems involving definition, verification, interpretation, and the handling of exceptions. Nevertheless, groups "conspire" to make faulty formal criteria behaviorally operative by continually reaffirming their applicability.

2. Place of origin often is one of the formal criteria for group membership. As with other formal criteria, an oversimplification of underlying patterns is usually generated for practical use, in this case an actual or mental *map*. One or more formal criteria must be used to determine which places "belong" to the group, and these *mapping criteria* may be different in crucial ways from the criteria used to identify individuals as group members. For example, knowledge of the group's original language may not be necessary for an individual to be part of the group; but the presence of a significant number of group language speakers may be the most important criterion for identifying the group's territory.[8] Maps and mapping criteria also are defined and refined in a variety of ways and contexts, and may be differently defined by group members, other groups, and scholars.

It is not the purpose of the present paper to explore the "internal" mental maps and mapping criteria used by Andean peoples to identify group territories. Rather, some new maps will be produced using census linquistic information, with a view to exploring the potential role of territory as a formal criterion for ethnic membership.

Andean Censuses as a Source of Cultural Information

The provision of cultural information has not been a priority of modern census administrators in Andean countries. Chile has never included questions on race, language, or ethnicity in its twentieth-century censuses, and Argentina has only done so in special censuses of limited application, not including Quechua speakers.[9] The Bolivian 1976 census did include a question about language,[10] and some information is available from the 1985 census of Colombia[11] and especially Venezuela.[12]

The only modern census in Ecuador to ask about culture was the 1950 census;[13] there is no cultural information in the later censuses. The 1950 census effectively did not reach the Amazonian population of that country, and no state agency has attempted to census the Amazonian population.

In Peru, the 1940 census asked about both language and race; the 1961, 1972, and 1981 censuses asked about language, with the 1961 census also asking additional information about cultural behavior. The 1961 census was, however, the last to publish ethnic information disaggregated to the district level. In addition, the Amazon land titling program has involved the inscription of numerous communities.[14]

Types of Census Error

Bad censuses can be used to produce good maps, as the following consideration of the sources of census error will show. Andean censuses involve several categories of census error:

1. Undercounting. Andean censuses generally do not reach the entire population because of the historical association of censuses with taxation and tribute. Part of the population may flee the census, while census givers may find reasons to avoid regions perceived as hostile. The undercounting may be greater in rural or poor urban areas, or in areas of high Indian or other ethnic minority population.

2. Poor formulation of questions and biased or indifferent census workers. Censuses almost by definition reflect the interests and needs of the state that is administering them. In Latin America, the state's attitude toward ethnic minorities has often been indifferent or hostile, and censuses may be seen as a way to track acculturation rather than measure ethnicity. This attitude is reflected in the census workers, who may be either indifferent to perceiving ethnicity or actively hostile to emphasizing its continued importance.[15]

3. Underresponding. Even where individuals are counted, they may not be forthcoming with data about such sensitive subjects as language or ethnicity. For example, in the Ecuadorian census of 1950, only 49 percent of the censused population of the parish of Cayambe gave information about language to the census takers. Underresponding may be greater in areas of ethnic minorities, perhaps particularly where the ethnic minority is not the dominant population, and therefore where it is particularly sensitive about its status. Of course, even where language is recorded, it applies only to the linguistically censused age groups (6 years or older in the 1950 Ecuadorian census; 5 years or older in the Peruvian censuses).

4. Misrepresentation. A person may wish to hide cultural status if it is perceived by the majority as a low status. Although it may be difficult for a monolingual to claim to be bilingual, a bilingual may claim to be monolingual in the dominant language, or to lie about his or her maternal indigenous language. In addition, the census taker may not be disinterested, but rather either concerned to emphasize acculturation or to record his or her own prejudices as to the "real" ethnicity of the local population.

5. Sampling error. In some censuses, language and other cultural information have been obtained not from the entire population but from a sample. Although perhaps acceptable for providing national aggregate values, sampling significantly reduces the usefulness of the census to provide fine-grained geographic detail.

6. Geographic aggregation. Censuses may not report cultural responses down to the smallest political unit, but rather aggregate them into larger units. The census thus becomes much less useful as a tool of detailed cultural mapping. Since the original census returns are often lost or unavailable, the failure to publish geographically disaggregated cultural data may result in the permanent inability to recover this information.

Use of Censuses to Establish Highland Indian Population

Andean censuses provide information that can be used as external formal criteria for estimating ethnic populations, and as external mapping criteria for defining ethnic territories. The types of error described above are more problematic for the former task than for the latter.

In general, the ethnic criterion that the Andean censuses have measured most often is language. The precise framing of the questions of language have varied, but usually multilingual status as well as maternal language have been queried.

Language is a powerful indicator of Indian status, related to other ethnic traits and to ethnic self-identity.[16] It is perhaps even more useful as a mapping criterion than as a formal criterion per se, since many persons who would claim to be Indian without speaking an Indian language live in territories where some people still retain Indian speech. Unfortunately, the types of census error described above tend to the underreporting of Indian linguistic affiliation. It is possible however to partially correct for these errors. Underreporting can be corrected in some instances by attributing the nonreporting population to the appropriate indigenous linguistic category. Misrepresentation can be allowed for by refusing to give much significance to the multilingual/monolingual distinction, but rather focusing attention on the quantity of persons admitting to at least some knowledge of indigenous languages.

In the Ecuadorian case, assigning nonreporting persons to the indigenous language category, correcting for the underage population, and adding both monolinguals and bilinguals results in the estimation of 442,120 highland Quichua speakers in 1950; this figure was 24 percent of the highland population and 31 percent of the rural highland population.[17]

A similar procedure for Peru in 1940 yields 3,178,701 Quechua and Aymara speakers and in 1961 3,581,153;[18] this has grown to 4,174,513 in 1981.[19]

Andean Spatial Segregation

Using language as a mapping criterion allows an appreciation of the spatial segregation of highland ethnic groups. Hugo Burgos has pointed out that geographic and sociological location has as much to do with Andean ethnic identity as language or other cultural indicators.[20] Furthermore, the use of language as a mapping criterion reduces some of the methodological problems of relying on poor census data.

Examining the case of Ecuador, and focusing on the rural population,[21] 67 percent of the Quichua speakers in 1950 lived in 22 percent of the highland parishes (i.e., those parishes with a rural Quichua majority). The same parishes contained only 10 percent of the non-Quichua-speaking population. In Peru and especially Bolivia the case is even simpler; Quechua (and Aymara) speakers are concentrated in the highlands of central and southern Peru and all of highland Bolivia.

Use of Censuses to Establish Territories

Censuses can be used to define the territories of ethnic groups by using language as a mapping criterion to define boundaries, and using the smallest census reporting unit as the map basis. The mapping criterion of ethnic territory can be based on rural rather than urban population. Rural/urban bias in census undercounts is thus allowed for.

The census can be treated as a sampling procedure, where each census area was sampled with a systematic bias toward undercounting Indian populations. From a geographic perspective, this bias is not critical where either Indian or non-Indian populations overwhelmingly predominate; it is most serious where the populations are most evenly matched. The bias can be corrected for by using a relatively low percentage of rural Indian language speakers as a mapping criterion. A value of 33 percent might be suggested for the Andean or other contexts.[22]

Underresponding can be corrected for by adding nonrespondents to the indigenous category, as described above. Otherwise, the same strategies used for dealing with undercount can be used for dealing with underresponse. Misrepresentation can be dealt with similarly. Bilinguals and monolinguals can be added to include all those admitting to speaking the Indian language; stratification by smallest census district and rural/urban area will enable fine-grained tracking of responses; and use of a moderate mapping criterion (33 per cent) helps adjust for enhanced misrepresentation at the edges of cultural domains.

Base Maps

Because of the complexity of Andean geography, only maps at a fine level of detail are useful. In Ecuador, the smallest political unit is the parish (*parroquia*); there are several hundred highland parishes. Although the 1950 census does report language at the parish level, there apparently are no surviving maps of the parish census regions at the time of the census. A parish map used for the 1973 census was therefore used for the present project, supplemented by information from an earlier 1957 map.[23] Fortunately, in most cases new parishes since 1950 were created distant from the Quichua domain.

In Peru, the most modern census to provide ethnic information down to the level of the smallest political unit, the *distrito* or district, is that of 1961. Therefore this census was used to create map 2, with certain adjustments.[24] The earliest *distrito* map

available was one created for the 1981 census; this was used as the base map for Map 2.[25] It shows 1,680 *distritos*, 185 more than existed in the 1961 census. Since most of the 185 new distritos were created in areas with few speakers of highland indigenous languages, the map was quite serviceable for the purpose at hand.

In Bolivia, the census of 1976 published data down only to the *departamento* level. Javier Albo has, however, published data from this census down to the *provincia* level; and these data permit mapping at a finer level of detail;[26] see map 3.

Using census districts to map ethnic territories, of course, results in the shape of the territorial boundary being determined in part by the arbitrary geometry of the districts themselves. This does not matter where the districts are very small; but where the districts are large, as at the edge of the Amazon basin, the boundary's shape may be substantially affected. A justification for this procedure is that a minor civil division dominated by an ethnic group may serve to project the group's power into sparsely settled areas.

Mapping Andean Cultures: Ecuadorian Quichua

Map 1 shows the highland Indian (Quichua) domain in Ecuador.[27] Except at the southern margin, the linguistic territory of Ecuadorian highland Indians is not an archipelago of tiny refuge areas but rather consists of two major blocs of Indian population. These blocs bear no relationship to the political geography of Ecuadorian provinces, and indeed have hardly been recognized by politicians, social scientists, or Indian activists.[28]

Mapping Andean Cultures: Peruvian Quechua and Aymara

If we similarly use 33 percent as the cutoff for defining the geographical domain of rural[29] Peruvian highland language speakers, the map of Quechua and Aymara speakers appears as shown on map 2. Of interest is the massive continuity of the Indian highland domain, so unlike that of Mexico or even Ecuador.

Peru involves several special difficulties. Often it is claimed that Quechua-Spanish bilinguals in Peru are not Indians but rather cholos in the process of acculturation to Spanish ideals. Such a viewpoint, however, implies as a necessary consequence the extinction of the Indian ethnicity as education becomes more widely available. It is at least equally plausible to focus on the retention of Quechua even after the acquisition of

Spanish as a refusal to relinquish Indian ethnicity, and to allow for the possible continued extension of Indian culture beyond its nineteenth-century domain.[30]

A special problem is that of mapping the Aymara-Quechua boundary, where indigenous people may claim to speak an indigenous language other than their native tongue.[31]

Bolivia

Apparently linquistic data are available only down to the provincial level from the 1976 Bolivian census, although it would be desirable to have the data down to the county (*cantón*) level. Combining monolinguals and plurilinguals, it appears that all of the rural Bolivian highlands outside of the far southern Tarija department are in the Indian domain, with over 33 percent speaking Aymara or Quechua (maps 2 and 3).[32] In Bolivia alone of the Andean countries can rural highland residence be plausibly equated with Indian ethnicity, as reflected in the usage of the word "campesino" as a substitute for "indio."

Checks of Mapped Domains

If these maps of ethnic territory provide information on a major internal or external formal criterion for defining Indian ethnicity, that of belonging to an Indian territory, then at least some other cultural traits should often exhibit similar distributions, at least on the local level. The detailed checking of every segment of border may perhaps be left for further investigations, but the results of preliminary checks are encouraging.

1. In an early study, Hugo Burgos attempted to estimate the indigenous population distribution of the interior of Chimborazo Province, Ecuador, using a methodology that combined cultural, sociological, and geographical evidence, but which did not rely on the 1950 linguistic census, of which he apparently was unaware.[33] He began by deciding which counties were Indian; then he estimated the Indian population of each parish within these counties by assuming that the rural population outside the county and parish seats was entirely Indian. His estimates both for the total Indian population of the province and for the populations of the parishes are remarkably close to adjusted censused values of Quichua speakers.[34]

2. The earliest census of highland housing materials in Ecuador was that of 1974.[35] For each county, this census indicates the percentage of traditional sierran houses in rural areas: thatched roofs, with walls neither of coastal (wood, bamboo)

nor of modern (brick, block) construction. In general, the only area that still had a high percentage of such houses corresponds with the central block of Quichua speakers in map 1. In this region the proportion of sierran houses is closely correlated with Quichua-speaking population.[36]

3. During the 1984–1985 school year, children entering first grade in Bolivar province of Ecuador were asked to state the language they habitually spoke at home.[37] If one assumes that differences in attendance rates are due to Quichua speaking students avoiding school, and adds these non attenders to the Quichua column, the resulting determination of the Quichua domain is close to that obtained using the 1950 census.[38]

4. On a larger scale, the significance of Indian domains can be checked in times of conflict, when supralocal ethnicity has the greatest chance of being called upon. The revolt of Tupac Amaru in the late eighteenth century is a case in point, where the patterns suggested above do appear to be reflected.[39]

5. In addition, if the proportion of people pertaining to the Indian *casta* is mapped using the late-eighteenth-century Bourbon *padrones*, the resulting patterns are remarkably similar to the linquistic patterns derived from modern censuses (map 4).[40] Whatever *casta* may have meant as a formal external category, its use as a mapping criterion seems to reveal a familiar potential territoriality.

Subdivisions of Indian Domains

In the Ecuadorian case, the fragmented character of the ethnic territory suggests the possibility that multiple Quichua ethnicities might persist, as in fact is observed at present. Such an outcome would be consistent with the pre-Hispanic ethnic partitioning of Ecuador, especially between the so-called "Cara" or Otavalo linguistic and economic sphere in the north and the "Puruha" sphere in Chimborazo.[41] This seems more likely than the success of recent attempts to define a pan-sierra Quichua nation subdivided into units along provincial boundaries.

In Peru, it has been suggested by Mannheim that the southern highlands constitute an ethnic or proto-ethnic bloc unified by one dialect of Quechua (Quechua II) and other characteristics.[42] This would lead to the isolation of at least one and perhaps more Quechua ethnicities in the central and north-central highlands.

Beyond Domains: Indians and Non-Indians

The maps suggest that a substantial area of the highlands no longer is marked by Quechua speech. In some cases, groups outside the borders shown do self-identify as Indians despite the lack of Indian speech.[43] Other groups have a strong geographically defined sense of local identity that is not perceived as Indian.[44] There are also groups which are uncertain of their self-identification and that might eventually choose to identify with cholos, mestizos, or with Indian ethnicities; conceivably, the results could depend on the relative benefits granted by the state to Indian minorities and to the willingness of Indians and non-Indians to accept new claims to membership in their respective groups. Such traits as coca-chewing extend considerably to the north of the northern limit of Quechua speech indicated in map 2.

Nevertheless, the bulk of the territory of northern Peru and far southern Ecuador seems likely to self-identify as non-Indian. It is noteworthy, however, that in these cases location as a formal criterion of ethnicity is, if anything, of greater practical significance. "Lojano," "norteño," and similar terms are among the most widely used and accepted ethnic terms in the central Andes. A further consolidation of these regional ethnicities is likely to be a significant factor in the crystalization of Indian ethnicities to the north and the south.[45]

Conclusion

Although there is a large contiguous region of Indian language use extending from north central Peru to southern Bolivia, this region is internally subdivided by dialect and adaptive strategy. The domain of Indian language use in Ecuador is large but fragmented into at least two separate regions. Indian regions in the Andes are by no means as fragmented as those in Mexico, but the notion of a single "Andean world" is hard to maintain as of either heuristic or political value.

At the same time, the existence and persistence of large contiguous and easily identifiable cultural territories in the high Andes indicates that the prospects are excellent for the continued salience of regional ethnicity in the political evolution of the Andean countries. Programs for internal political restructuring would do well to recognize this probability; so far, these programs have been more attuned to economic criteria than to cultural criteria.

The historical and processual explanation of these geographical patterns is an inviting research frontier. Another frontier might be the investigation of the degree to

which ethnic territoriality per se is implicated in the processes of Andean ethnic self-awareness, for both Indian and non-Indian populations.

Notes

1. Many of the ideas in this paper have been published in Peru and Ecuador, and I have benefited from the opportunity to discuss them with many individuals who know far more than I about Andean ethnicity. In Ecuador, I am especially indebted to Galo Ramón Valarezo, Ruth Moya, José Pereira, Alfredo Costales Samaniego, Maria del Carmen Molestina, Mathias Leonhardt Abram, Maria Mogollón, Jaime Miranda, and the personnel of the Instituto Nacional de Estadística y Censos, Instituto Nacional del Patrimonio Cultural, Museo del Banco Central, Comisión Fulbright (who provided funding), the Comisión de Límites of the Ministerio del Gobierno, and the Instituto Geográfico Militar. In Peru, I benefited from discussions with Graciela Hernández de Baca of the Instituto Nacional de Estadística, Mary Ruth Wise of the Instituto Lingüístico de Verano, Alberto Chirif, Carlos Mora, Fernando Villiger, Juan Ossio, Magda Comarco, Franklin Pease, María Rostworowski, María Benavides, Marcia Koth de Paredes, Nicole Bernex de Falen, and Enrique Carrión. The personnel of the Consejo Nacional de Población (Lima) were also very helpful. The Peruvian research was undertaken while affiliated with the Pontífica Universidad Católica in Lima; the Ecuadorian research under affiliation with the Instituto Nacional de Patrimonio Cultural.

2. Quichua and Quechua are the same language, with the former spelling being accepted in Ecuador and the latter in Peru and Bolivia.

3. Most modern Ecuadorian ethnic maps are based on Edwin Ferdon's approximation of 1947, for example, Instituto Linguístico del Verano, "Mapa Étnico del Ecuador con Determinaciones Aproximadas de las Ubicaciones y Poblaciones de las Tribus Indígenas" (Ozalid, 1972). These are extremely crude in the highlands, although useful for lowland areas. A remarkable unpublished map apparently based on extensive fieldwork is "Mapa de Grupos Indígenas y Grupos Marginales del Ecuador" (Instituto Ecuatoriano de Antropología y Geografía, Quito, 1959), manuscript map at a scale of 1:1,000,000 in Cajón 13, Biblioteca del Centro Panamericano de Estudios e Investigaciones Geográficas, Quito. Unfortunately, there does not seem to be any methodological information accompanying this map. Peru has been somewhat better served. George Kubler, focusing on *casta* and *raza* rather than language, and mapping at the *provincia* rather than the *distrito* level, has provided a very useful atlas of the emergence of Indian ethnic regions in *The Indian Caste of Peru, 1795–1940* (Washington, D.C.: Smithsonian Institution, 1952). John Rowe mapped Quechua and Aymara speakers using language data from the 1940 census, but only at the *provincia* rather than the *distrito* level (see John H. Rowe, "The Distribution of Indians and Indian Languages in Peru," *Geographical Review* 237:202–215). The best-known modern map of the ethnic distributions in Peru is that of Hugo Pesce, "Mapa Lingüístico del Perú," in *Atlas Histórico Geográfico y de Paisajes Peruanos* (Lima: Instituto Nacional de Planificación, 1969). Unfortunately, there is no methodological discussion accompanying this map, and it clearly does not reflect full use of modern census data. Surprisingly there are no ethnolinguistic maps in Sarah Myers, *Language Shift Among Migrants to Lima, Peru* (Chicago: University of Chicago Department of Geography Research Paper Number 147, 1973). Earlier censuses do not refer to language but to ethnicity, *raza*, or *casta*. See, for example, the analyses of the Bourbon census information of the late eighteenth century in Jürgen Golte, *Repartos y rebeliones: Túpac Amaru y las contradicciones de la economía colonial* (Lima: Instituto de Estudios Peruanos, 1980). In the case of Bolivia, the appropriate sources and first efforts to map linguistic regions according to the criteria established here were explored by Luke Stollings and Sandra Wheaton, in a seminar on ethnic mapping at the University of Texas, fall 1988.

4. ". . . let us define an ethnic group . . . as a population whose members define their collective survival in terms of replicating a shared identity, through socially defined biological reproduction," Richard N. Adams, "Ethnic Emergence and Expansion in Central America," *Texas Papers on Latin America* No. 88-08 (Austin, 1988), and "Internal and External Ethnicities: With Special Reference to Central America," *Texas Papers on Latin America* No. 89-03 (Austin, 1989). My excursions into the

study of Andean ethnicity have been conditioned by my primary interest in the cultural ecology and adaptive strategies of Andean peoples; see Gregory Knapp, *Ecología Cultural Prehispánico del Ecuador*, Bibliografía de Geografía Ecuatoriana 3 (Quito: Banco Central del Ecuador, 1988). The literature on ethnicity is extensive, and even a summary would be difficult to undertake in a short paper of this nature. Much of the following discussion has been influenced by Karl Butzer, Terry Jordan, Richard Adams, Frank Salomon, David Robinson, J. Stephen Athens, and Bruce Mannheim, whose influence I gratefully acknowledge here.

5. Karl Butzer has described various possible modes of restructuring under interethnic competition due to colonization. Under conditions of invasion by a politically and economically predominant group, which, however, lacks demographic predominance, Butzer suggested that the "host group may be selectively displaced, spatially and economically, but its language and other cultural traits commonly survive in enclaves or even on a large scale." "Long-term ethnic survival is possible in dual societies with strong spatial segregation, especially if self-identification is strengthened by the resuscitation of ethnic symbols..." See Karl Butzer, "The Frontier as a Crucible for Cultural Transformation," in *Person, Place, Things*, edited by M. Eliot Hurst and S. Tuck Wong, in press.

6. See the classic discussion in Gonzalo Aguirre Beltrán, *Regiones de refugio* (Mexico City: Instituto Indígenista Interamericano, 1967). This scheme has been applied to the central Ecuadorian highland domain, the northern Ecuadorian highland domain, and to southern Peru; see Hugo Burgos, *Relaciones interétnicas en Riobamba: dominio y dependencia en una región indígena Ecuatoriana* (Mexico City: Instituto Indígenista Interamericano, Ediciones Especiales 74, 1970); Gladys Villavicencio Rivadeneira, *Relaciones interétnicas en Otavalo, Ecuador*, Instituto Indígenista Interamericano, Mexico City, 1973; and Pierre L. Van den Berghe and George P. Primov, *Inequality in the Peruvian Andes: Class and Ethnicity in Cuzco* (Columbia: University of Missouri Press, 1977).

7. For the case of the Otavalo Indians, see Frank Salomon, "Weavers of Otavalo," in *Peoples and Cultures of Native South America*, edited by Daniel R. Gross, pp 463–492 (Garden City, N.Y.: Doubleday/Natural History Press, 1973). Territorial boundaries define a population linked by the multiple ties of contiguity. Even when no consensus exists as to the defining role of language or religion, a group may recognize itself in its homeland, and use the map as a principal criterion of self-definition: one belongs if one lives or has once lived in the homeland. The power of place and of the map for ethnic self-definition can be seen in the near universality of geographic referents in ethnic labels; nearly all maturely self-aware ethnic groups refer themselves to a particular homeland, past or present, and typically to a homeland with very sharp boundaries.

8. Each member of the group and indeed each outsider probably has a different package of criteria of ethnicity; but any functional and self-aware ethnic group is sufficiently redundant in its identifying characteristics that these interpersonal differences in interpretation probably do not greatly matter.

9. See Ministerio del Interior, *Censo Indígena Nacional*, 2 vols., (Buenos Aires, 1968). This census specifically did not include Aymara and Quechua speakers.

10. The most geographically detailed, although not complete, publication of the linguistic results of this census appears to be that of Javier Albo, *Lengua y Sociedad en Bolivia 1976* (La Paz: Instituto Nacional de Estadística, n.d.).

11. The Colombian data have so far not been published in a geographically useful manner. There were 237,759 "indigenous" persons inhabiting "indigenous areas"; see DANE (Departamento Administrativo Nacional de Estadística, XV *Censo Nacional de Población y IV de Vivienda Colombia* (Vol. 1) Julio de 1986. Censo 1985 (Bogotá, 1986).

12. There was an "empadronamiento especial" of the indigenous population of Venezuela in the 1950 and the 1960 censuses. The 1982 "Censo Indígena de Venezuela" has in part already been published.

13. DNEC (Dirección General de Estadística y Censos), *Primer Censo de Población del Ecuador. 1950*. Vol. IV, Tomo I. Población por Idiomas y Dialectos (Quito: Ministerio de Economía, 1954).

14. Land titling information was used to infer the Indian patterns in Amazonian Peru shown on the maps in Gregory Knapp, "Geografía lingüística y cultural del Perú contemporáneo," *Anthropológica* (Lima, Vol. 6, No. 6, pp 285–308, 1988).

15. See Enrique Mayer, "Censos insensatos: evaluación de los censos campesinos en la historia de Tangor," pp 339–365 in *Visita de la provincia de León de Huánuco en 1562*, edited by John V. Murra, (Huánuco: Universidad Nacional Hermilio Valdizán, 1972).

16. For the appropriateness of this indicator of ethnicity in Ecuador and Peru, see Sarah Myers, *Language Shift among Migrants to Lima, Peru* (Chicago: University of Chicago Department of Geography Research Paper Number 147, 1973); Louisa Stark, "Ecuadorian Highland Quechua:History and Current Status," in *South American Indian Languages: Retrospect and Prospect*, edited by H. E. M. Klein and L. R. Stark, (Austin: University of Texas Press, 1985); and Bruce Mannheim, "Southern Peruvian Quechua," pp. 481–515, ibid.

17. Gregory Knapp, *Geografía Quichua de la Sierra Ecuatoriana* (Quito: Abya Yala, 1987).

18. Not including Huanca speakers, who were not treated as Quechua in this census.

19. Gregory Knapp, "Linguistic and Cultural Geography of Contemporary Peru," *Texas Papers on Latin America* No. 87-13, Austin, 1987; Gregory Knapp, "Geografía Lingüística y Cultural del Perú Contemporáneo," *Anthropológica* (Lima, Vol. 6, No. 6, pp. 285–308, 1988).

20. See Hugo Burgos, *Relaciones interétnicas en Riobamba: dominio y dependencia en una región indígena Ecuatoriana* (Mexico City: Instituto Indígenista Interamericano, Ediciones Especiales 74, 1970).

21. In the 1950 census the rural population is simply the population living outside the county (*cantón*) seats.

22. If a group is 33 percent of the total population, it has at most one other ethnic competitor for the status of plurality. At worst, then, it is the second largest ethnic group; and if there is an ethnic ranking (as there normally is) and it is second, it can be assured the status of largest "deprived" ethnicity. The boundary thus defined is of use to other members of the group, as they only need to assure themselves that the person from the area is indeed "deprived" to be reasonably certain that he/she is also from the ethnic group. If the region has less than 33 percent of the ethnic group, however, another ethnic group may constitute the majority of the deprived population, and geography would have to be supplemented with more information than status to reasonably indicate ethnicity.

23. The 1973 parish map, Ozalid at a scale of 1:1,000,000, is untitled and was obtained by courtesy of the agency PRONAREG. The earlier map was produced by the Junta Nacional de Planificación y Coordinación Económica, "Mapa de la División Territorial," 1:1,000,000, copy in the Mapoteca, Instituto Geográfico Militar, Quito.

24. Since the results for San Martín, Tacna, and Tumbes departments were never published, patterns are mapped using data from the 1940 and 1981 censuses. The Huanca dialect of Quechua was reported as a non-Quechua language. To correct for this, in districts where Huanca is spoken, the number of persons speaking non-Quechua dialects were added to Quechua speakers.

25. Instituto Nacional de Estadística, *República del Perú-Mapa Distrital-INE: Inventario Cartográfico* (1:2,000,000 scale, Lima, 1982).

26. Javier Albo, *Lengua y Sociedad en Bolivia 1976* (Instituto Nacional de Estadística, La Paz, n.d.).

27. 1950 Census, with nonreporting individuals assigned to the Quichua category. We use 33 percent as the cutoff for defining at the parish level the geographical domain of rural Quichua language speakers.

28. See, for example, Lourdes Conterón and Rosa di Viteri, *Causaimanta allpamanta quishpirincacaman tantanacushunchic. Organizaciones indígenas del Ecuador.* (Quito: Ministerio de Educación y Cultura, Oficina Nacional de Alfabetización de Pichincha, 1984).

29. In this case, rural population consists of all those distritos except for those containing *provincia* capitals.

30. "The extent to which Quechua is being maintained indicates that a modified Quechua culture area has grown up in the lowland urban environment of the capital city", (Sarah Myers, *Language Shift Among Migrants to Lima, Peru*, p. 166. George Kubler (*The Indian Caste*) also suggested that the Indian domain in Peru actually expanded in the Ancash area as a response to economic depression.

31. Bruce Mannheim, personal communication. This appears to be a problem especially with respect to Aymara speakers claiming to be Quechua speakers.

32. Javier Albo, *Lengua y Sociedad.* See also Sandra Wheaton and Luke Stollings, *Regional Change in Bolivia: Ethnic and Economic Restructuring*, paper presented in Seminar in Regional Geography (Prof. Greg Knapp), Department of Geography, University of Texas, Austin, December 1988.

33. Hugo Burgos, *Relaciones Interétnicas en Riobamba.*

34. He estimated 45.8 percent of the province was ethnically indigenous; our manipulation of the 1950 census suggested that 44.3 percent of the province was Quichua-speaking. A regression of Burgos' values for rural indigenous population against values of the author derived from the 1950 census, for 27 internal parishes of Chimborazo, resulted in an r square of 0.781; see Gregory Knapp, *Geografía Quichua*, pp 18–19.

35. See Instituto Nacional de Estadística y Censos, *II Censo de Vivienda*, Quito, 1974.

36. For the 22 counties between Saquisilí and Cañar, the percentage of rural houses of traditional sierran construction (T) are related to the corrected percentage of rural population speaking Quichua (Q) by the following linear equation: T = 3.37 + .79Q (r square of .759). See Gregory Knapp, *Geografía Quichua*, p. 19 and Appendix 3.

37. See "Número de alumnos según el idioma que usualmente hablan en la casa: año escolar 1984–1985." Manuscript in possession of Matthias Leonhardt Abram.

38. Of the four regions in the 1984–1985 study that had over 33 percent Quichua speech, only one exhibited less than 33 percent in 1950: Guaranda, containing the provincial capital. See Knapp, *Geografía Quichua* , p. 20.

39. Jürgen Golte, *Repartos y Rebeliones.*

40. This map is derived from *empadronamientos.* No attempt has been made at quality control of the raw data, or to control for differences in *casta* definition between regions. A larger version of this map was presented at both the annual meeting of the Congress of Latin Americanist Geographers, Querétaro, Mexico, May 1989, and the symposium on Cultural Adaptation at the Edge of the Spanish Empire, Austin, Texas, April 1989. I appreciate especially the comments of Hector Pérez Brignoli, Aline Helg, and David Robinson in conditioning my interpretation of the resulting patterns. The data for Peru are aggregated by *partido*, and are taken from Archivo Nacional, Sección Histórica, Palacio de Justicia, Lima, Donaciones 7–144, F. Francisco Gil, "Dirijiendo el adjunto papel en que se explica la población que contiene el reyno del Perú en su estado actual," Lima, 5 de Noviembre de 1792 (typescript copy of original in Seville). The original document in Seville is in Estado 73, carpeta 40/40a, AGI/S. For the area of modern Bolivia, data at the level of *provincia* were aggregated from the document, "Extracto general del número de almas que comprehende el arzobispado de la plata arreglado a los padrones particulares de cada doctrina, en cumplimiento de lo ordenado pr. el Rey Nuestro Señor, formado en el año de 1778 . . .," AGI/S, Indiferentes 1527 (Actual location, Documentos para restaurar Carpeta 5). For what is now northwestern Argentina, the data are aggregated at the level of doctrina from "Obispado de Tucumán: estado que manifiesta el número de personas que se hallan en dho. Obispado, con expresión de los nombres de los curatos donde residen, sus clases, estados y castas, según los padrones que an hecho sus respetivos Curas el Año pasado de 1778," AGI/S Indiferentes 1527. For Chile and the Cuyo, mapped data are aggregated at the level of *corregimiento* and taken from "Población del obispado de Santiago, por corregimientos, estado civil y castas, segun el recuento efectuado el año 1779," p. 36 in "Reseña de la historia censal del Pais," pp. 11–33, XII Censo de la Población, Resultados Definitivos 1952, Servicio Nacional de Estadística y Censos, Santiago, 1956. For Ecuador, the data are aggregated by *corregimiento* and taken from "Provincia de Quito: padrón general hecho en el año de mil setecientos,y ochenta . . ." in AGI/S Indiferentes 1527 Estado 8. For Cuenca, the source was "Formulario de padrones: provincia de Cuenca . . ." [1780], Archivo Nacional de Historia, Quito, Ecuador, Emp. 1 Azuay 1776-1871. And for Guayaquil, the source was "Provincia de Guayaquil: padron echo en el año de 1780 . . .," Archivo Nacional de Historia, Quito, Ecuador, Emp. 32.

41 See J. Stephen Athens, "Ethnicity and Adaptation: The Late Period-Cara Occupation in Northern Highland Ecuador" (manuscript, International Archaeological Research Institute, Honolulu,

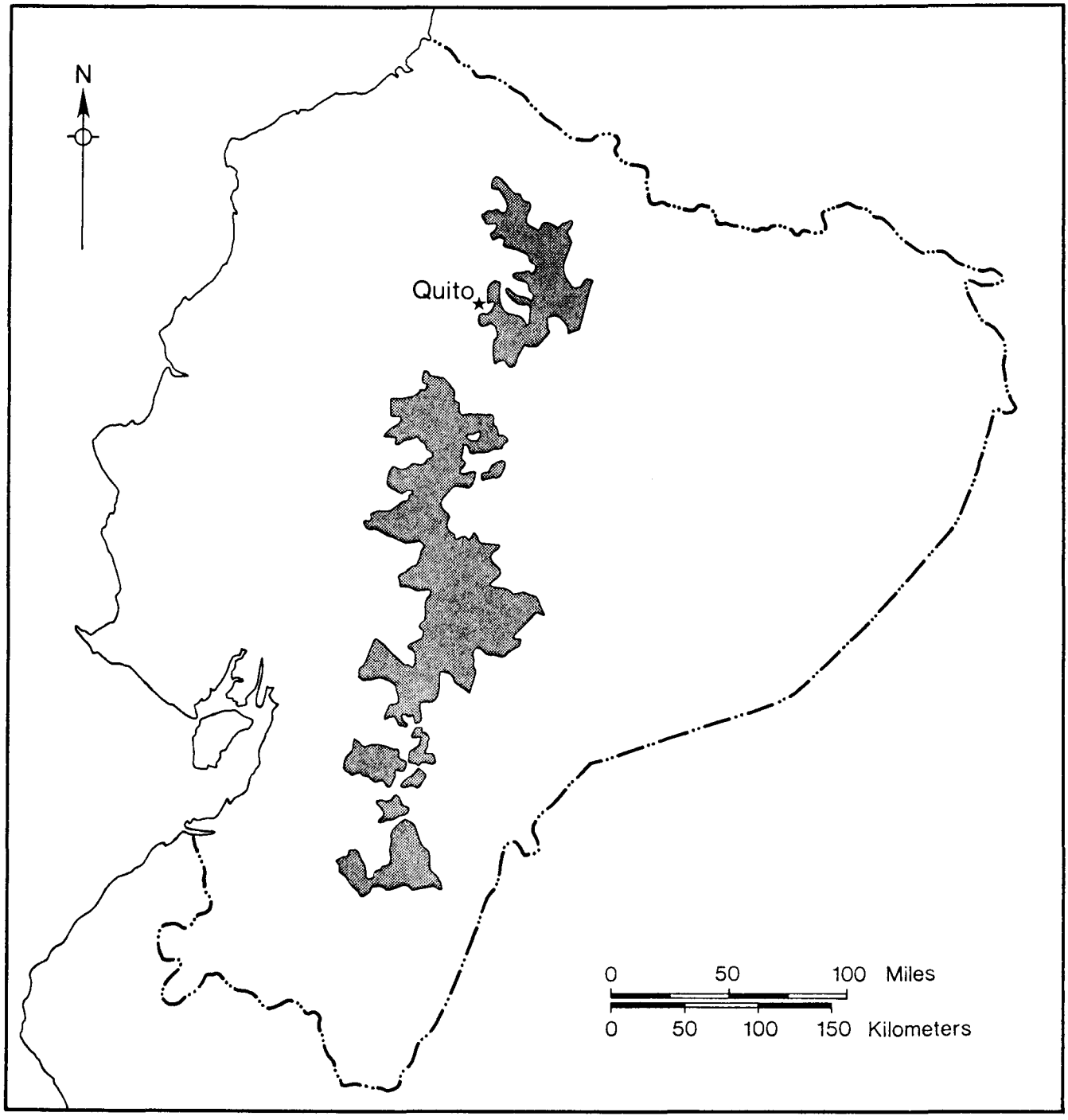
1988). See also Frank Salomon and Sue Grosboll, "Names and Peoples in Incaic Quito: Retrieving Undocumented Historic Processes Through Anthroponomy and Statistics," *American Anthropologist* 88 (1986), pp. 387–399. Protestant missionary activity seems to be reinforcing this cleavage as the central highland Quichua have converted in the greatest numbers.

[42]Mannheim, "Southern Peruvian Quechua" in Klein and Starka, and personal communication.

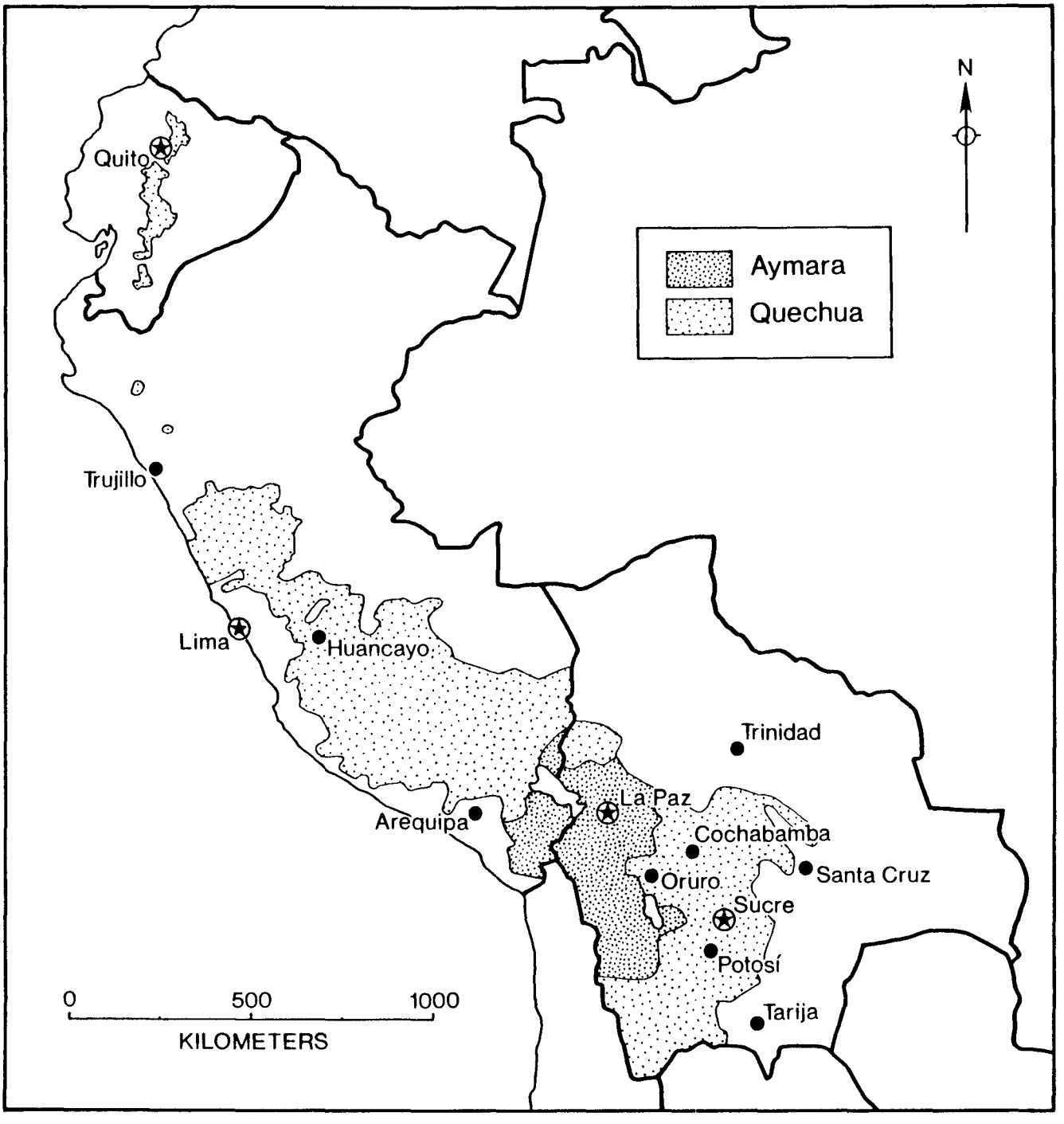
[43]An example would be the small "Natabuela" Indian group of northern highland Ecuador near Ibarra.

[44]For example, Pimampiro and Atuntaqui in northern highland Ecuador near Ibarra.

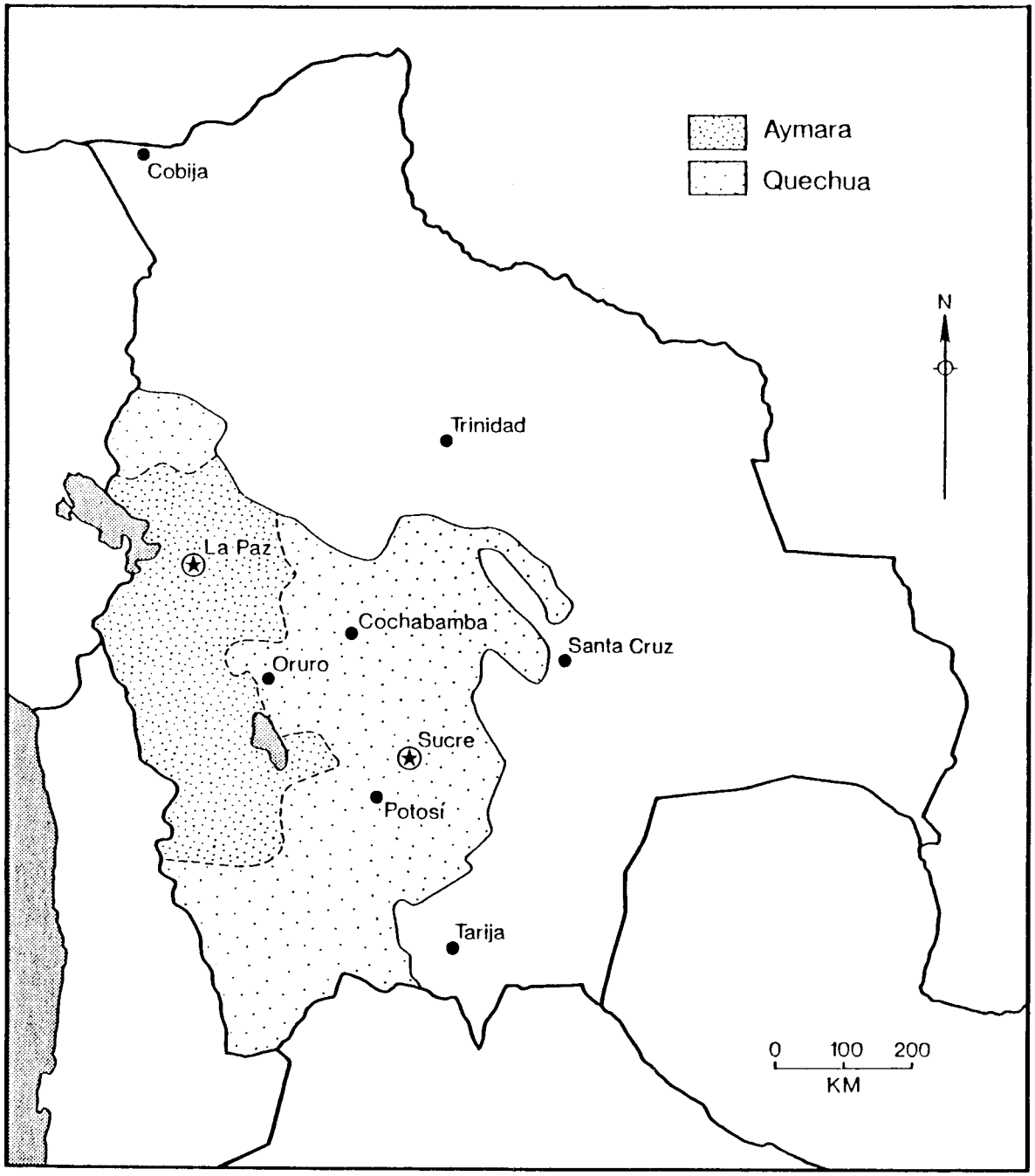
[45]Attempts at delineating non-Indian Ecuadorian cultural domains have been made by the author in the articles and books cited above.



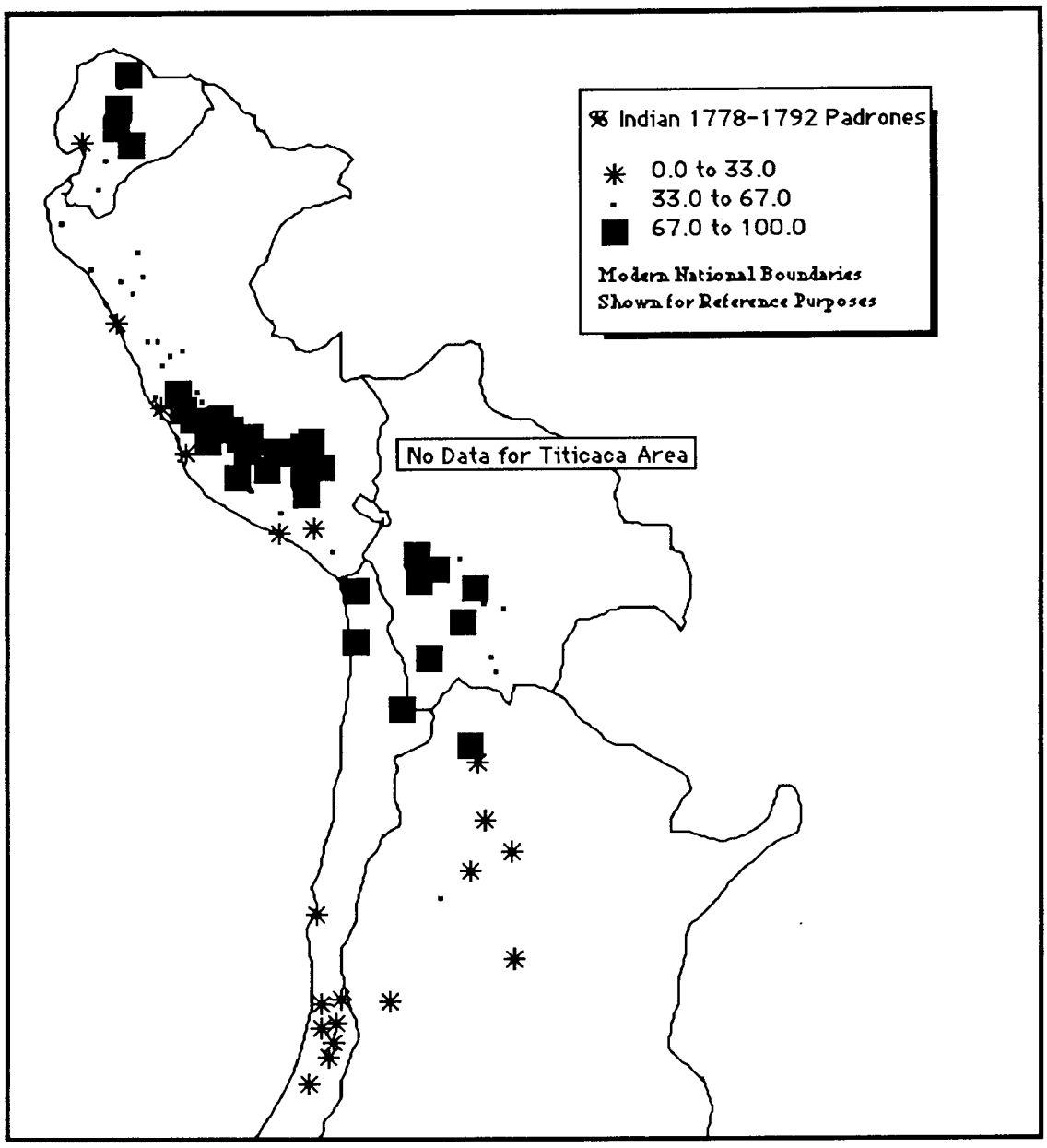
Map 1. Domain of Ecuadorian Quichua (>33%, rural population)



Map 2. Domain of Aymara and Quechua, Central Andes



Map 3. Domain of Aymara and Quechua, Bolivia



Map 4. Territories of High Indian (Casta) Percentages as Evidenced in Bourbon Censuses